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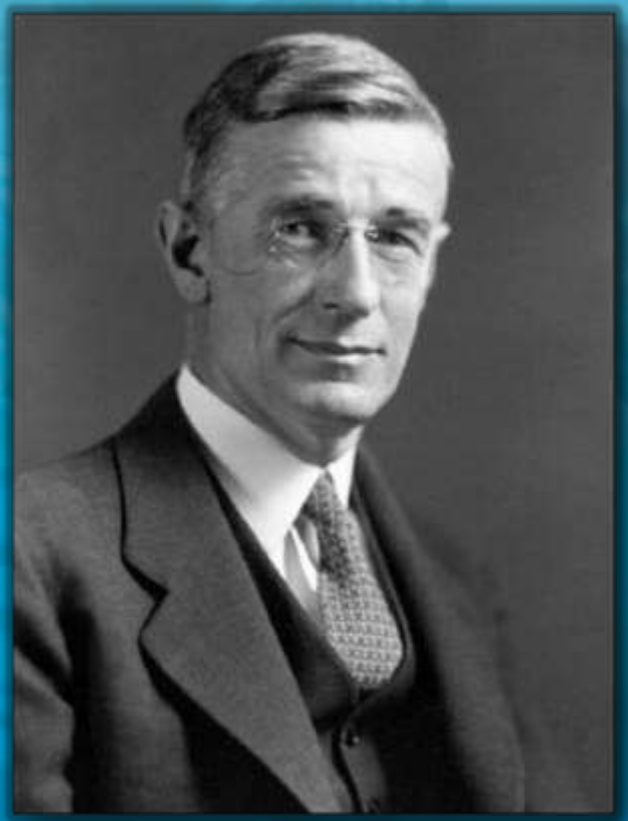
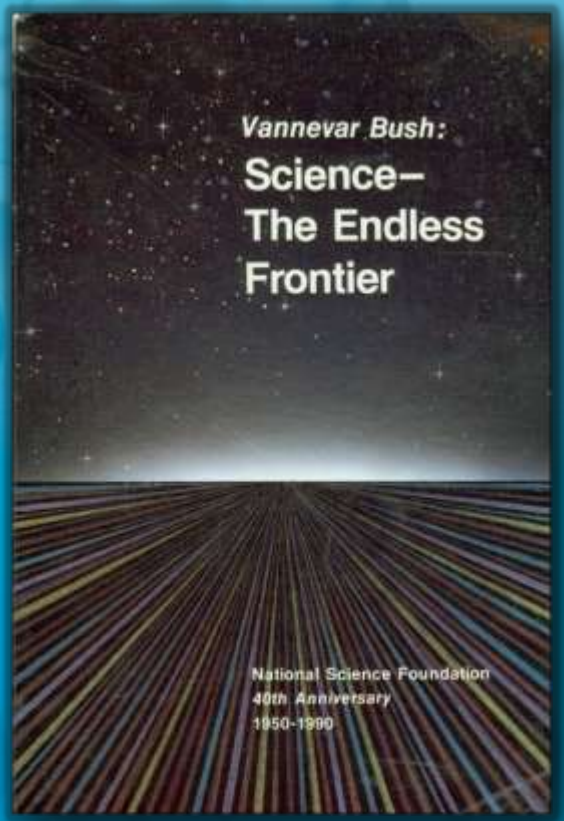
NATIONAL SCIENCE FOUNDATION

EMPOWERING DISCOVERY

Dr. Cora B. Marrett
Acting Director, National Science Foundation

Research: Catalyst for Innovation, National Security and Economic Growth





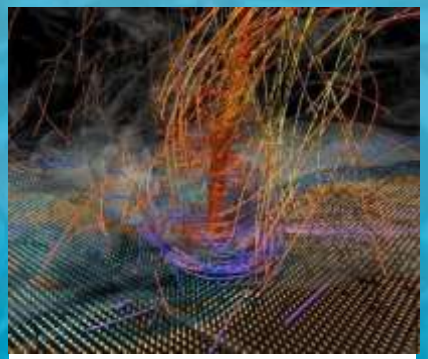
National Science Foundation created in 1950

NSF's Role in Science & Engineering Research

- Annual budget about $7 billion, ~ 94% goes to funding programs
- Funds basic research across all S&E disciplines and for research into STEM education
- Provides support for more than 300,000 researchers
  - Balance between individual scholarship and "big facilities"
  - Funds the best people and the best ideas
- 200+ Nobel laureates received NSF funding
  - 70% of all U.S. Nobel laureates since 1951
  - 40 NSF Graduate Research Fellowship winners are Nobel laureates
- Industrial, economic and societal impact

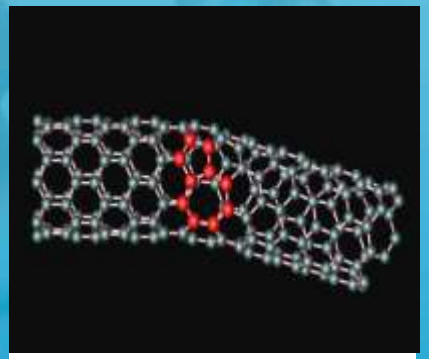
NSF Champions Research and Education Across All Fields of S&E

Biological Sciences



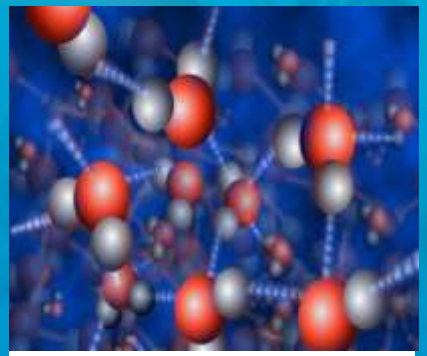
Computer & Information Science & Engineering

Education & Human Resources



Engineering

Geosciences



Mathematical & Physical Sciences

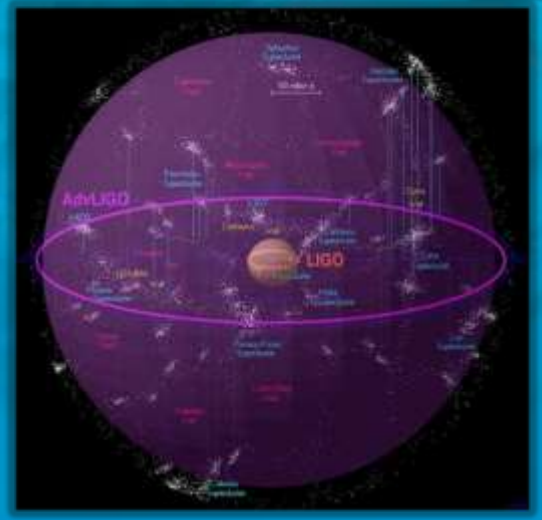
Social, Behavioral & Economic Sciences

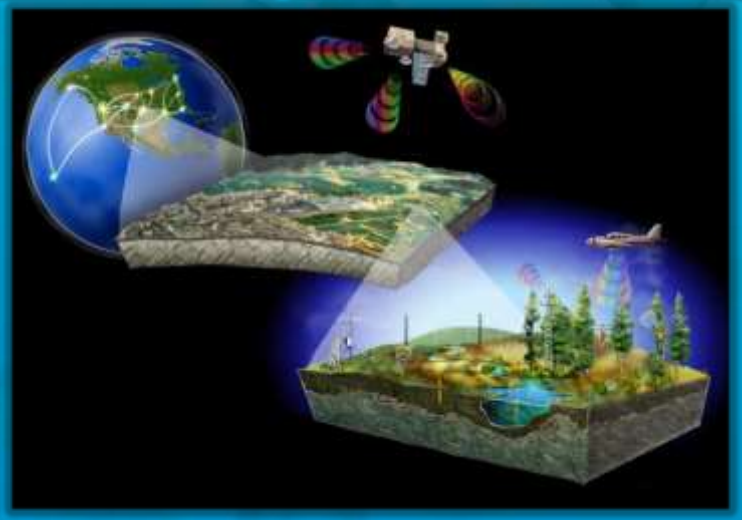
International & Integrative Activities

NSF Science & Engineering Portfolio: Empowers Discovery and Innovation

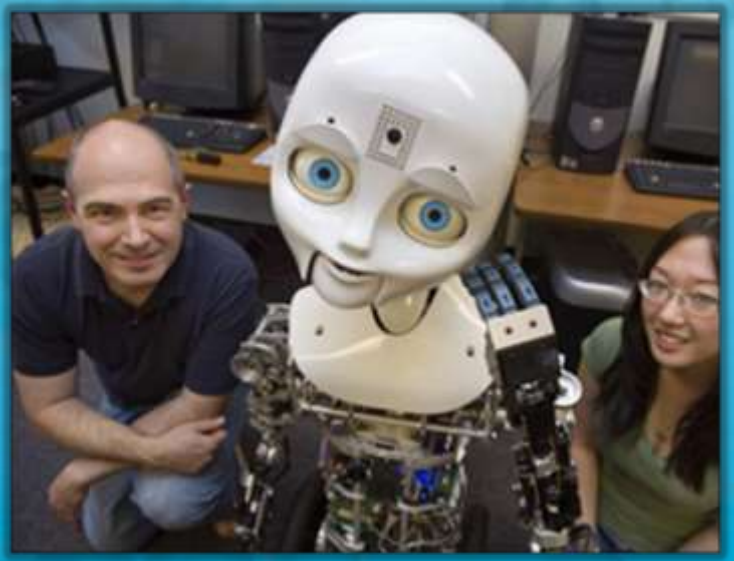
Supports the Fundamental Research That Underpins Progress in Science, Technology and Innovation

Invests in Major Research Tools

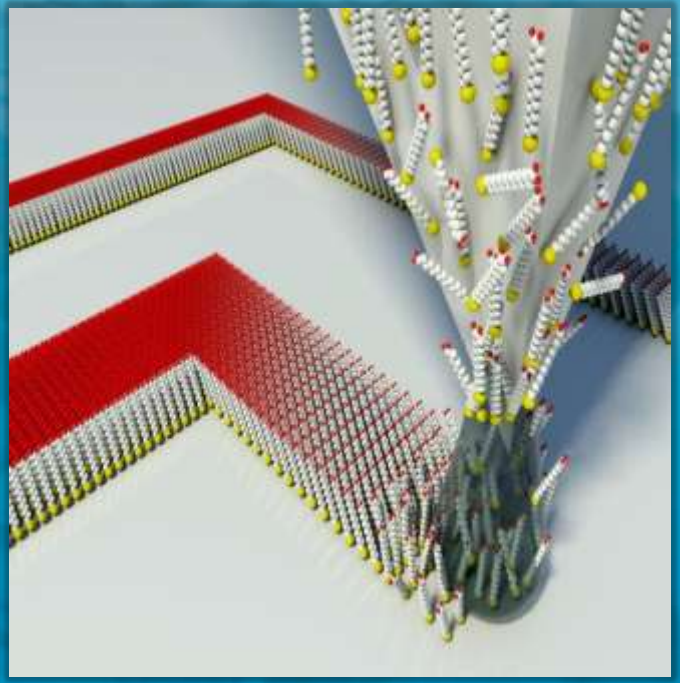




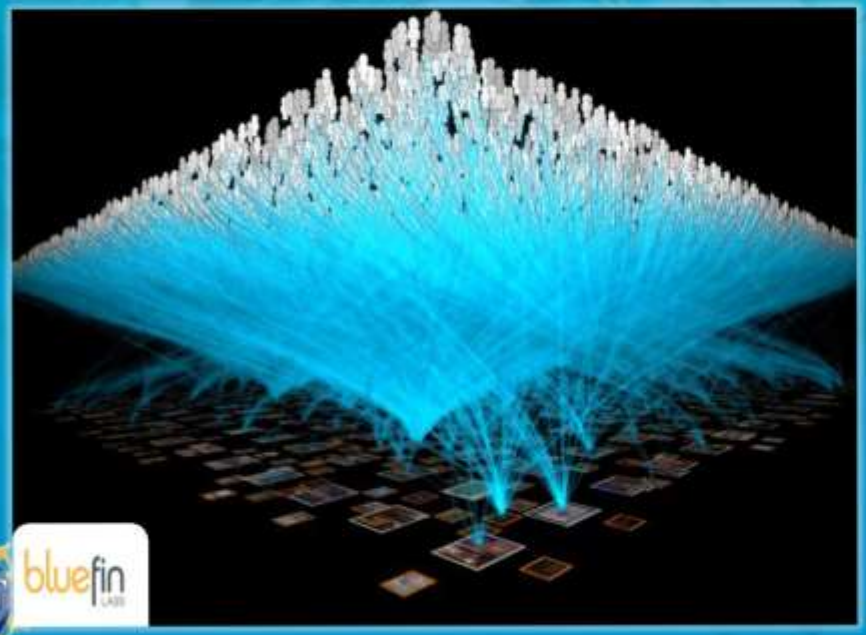
Lays the Groundwork for Industries and Jobs of the Future

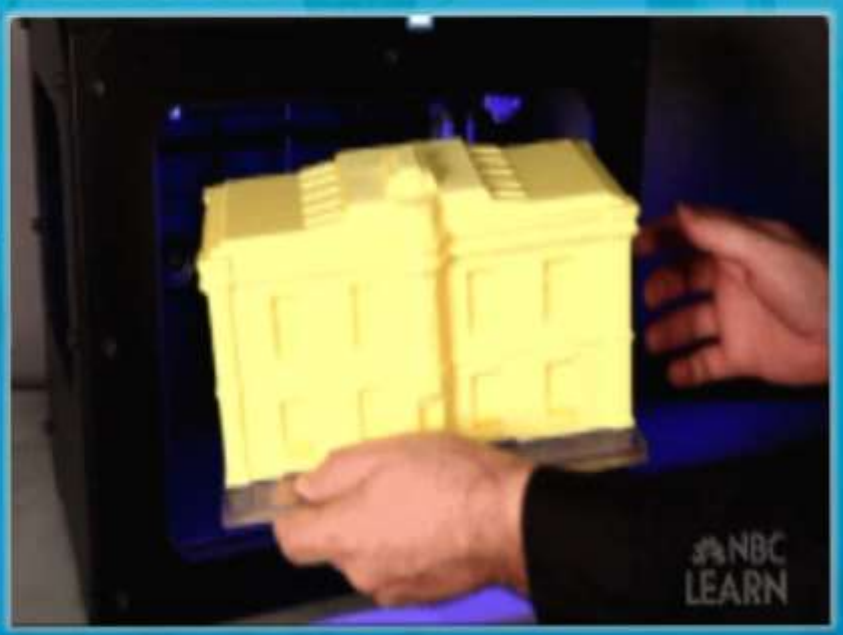


Invests in Long-Term Competitiveness of American Manufacturing



Accelerates Innovations From the Laboratory to the Market

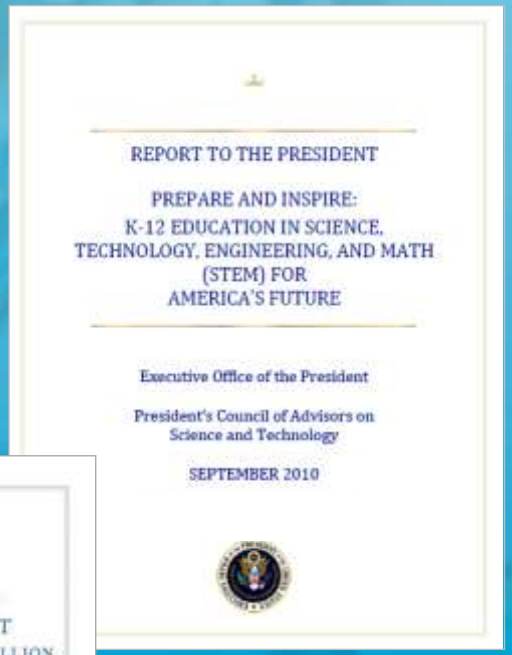




NSF Science & Engineering Portfolio: Rising to Meet the STEM Challenge

STEM Education Is a National Imperative

"STEM education will determine whether the United States will remain a leader among nations and whether we will be able to solve immense challenges in such areas as energy, health, environmental protection, and national security."

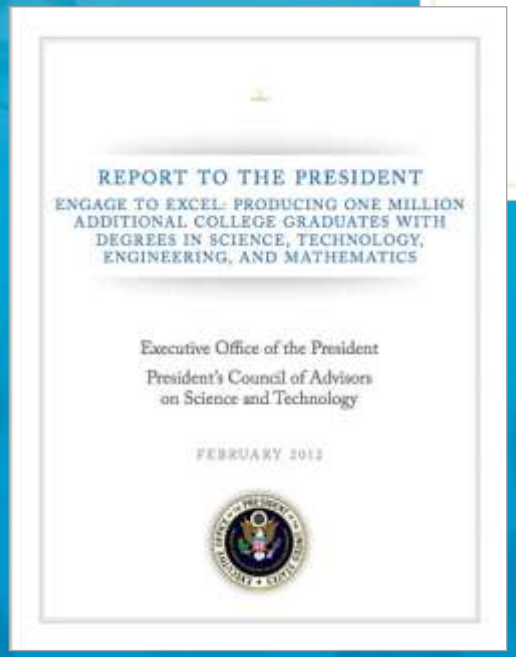

REPORT TO THE PRESIDENT

PREPARE AND INSPIRE:
K-12 EDUCATION IN SCIENCE, TECHNOLOGY, ENGINEERING, AND MATH (STEM) FOR AMERICA'S FUTURE

Executive Office of the President

President's Council of Advisors on Science and Technology

SEPTEMBER 2010


REPORT TO THE PRESIDENT

ENGAGE TO EXCEL: PRODUCING ONE MILLION ADDITIONAL COLLEGE GRADUATES WITH DEGREES IN SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS

Executive Office of the President

President's Council of Advisors on Science and Technology

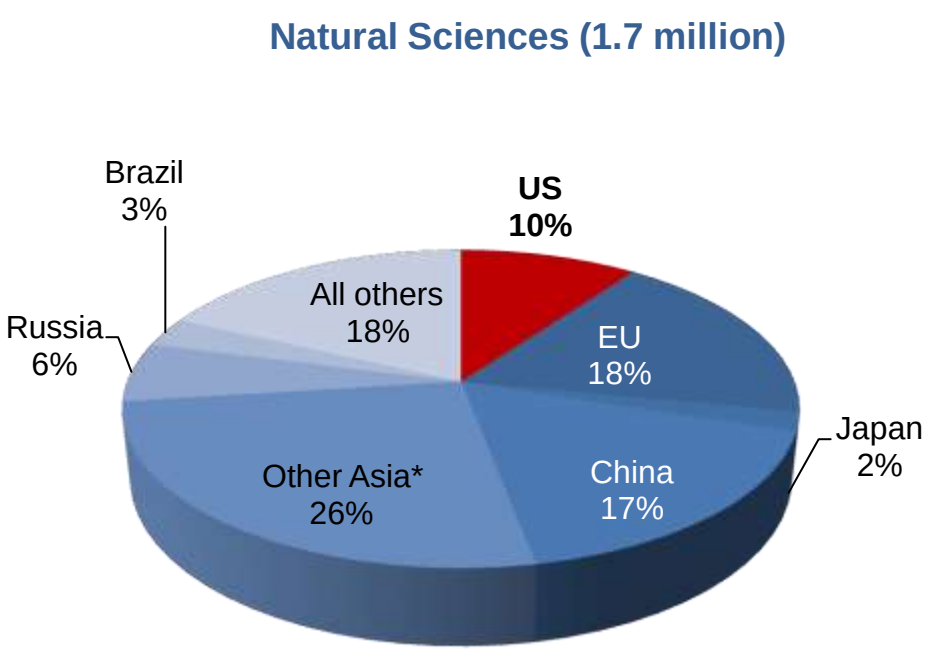
FEBRUARY 2012

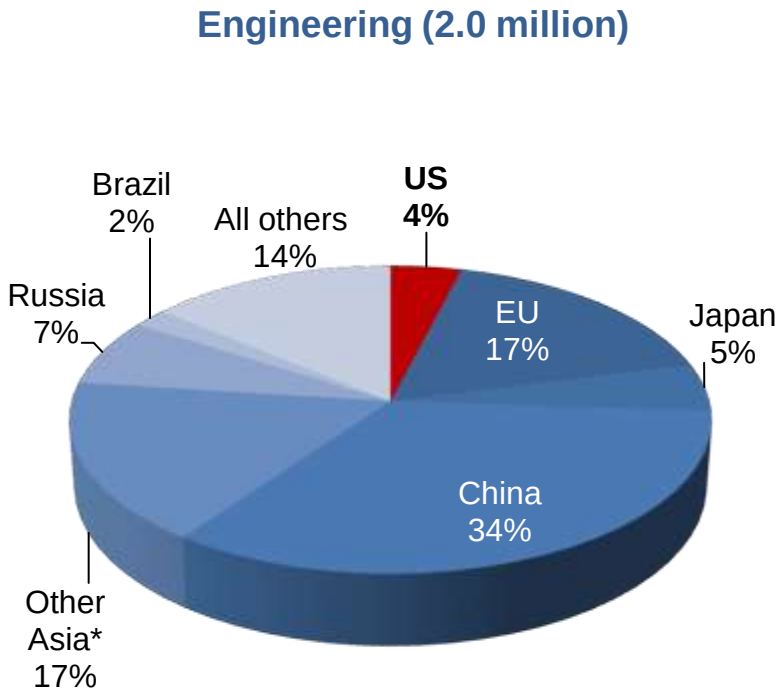
- **Prepare a STEM-capable citizenry**
- **Inspire a STEM-proficient workforce**
- **Produce over the next decade 1,000,000 additional college graduates in STEM fields**

Sources: President's Council of Advisors on Science and Technology, September 2010 , *Prepare and Inspire: K-12 Education in Science, Technology, Engineering, and Math (STEM) for America's Future*

President's Council of Advisors on Science and Technology, February 2012, *Engage to Excel: Producing One Million Additional College Graduates with Degrees in Science, Technology, Engineering, and Mathematics*

U.S. Compares Poorly with Other Nations in STEM Degree Production





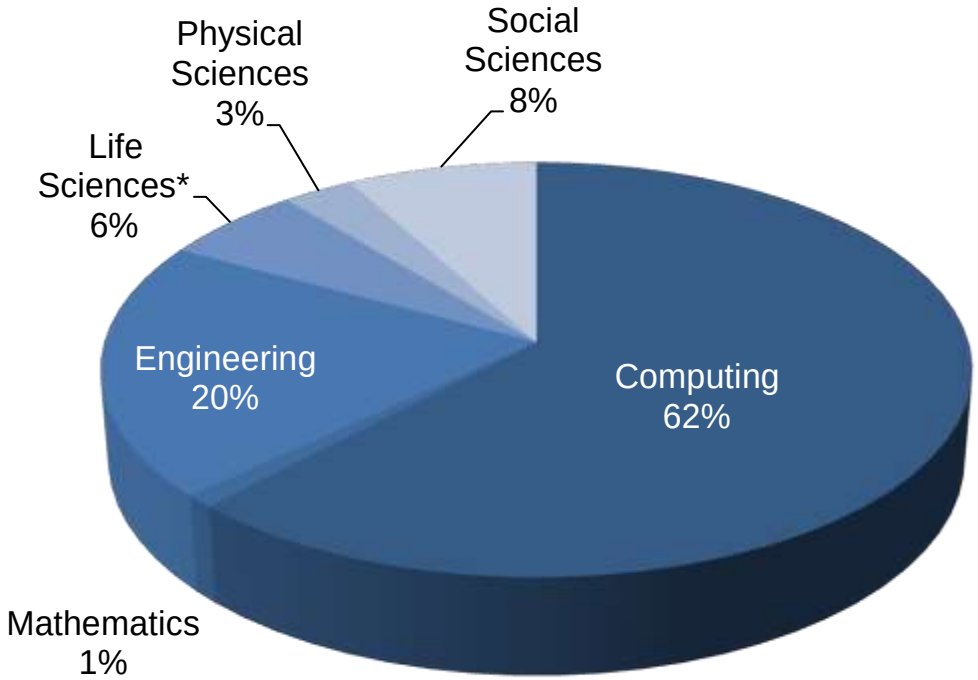
First university degrees in natural sciences and engineering by selected region/country
2008 or latest data

Other Asia* = India, Indonesia, Malaysia, Philippines, Singapore, South Korea, Taiwan, Thailand;
EU = European Union

*Source: National Science Board, *Science and Engineering Indicators 2012*

Tomorrow's STEM Jobs

Projected Annual Growth of NEWLY CREATED STEM Job Openings 2010-2020



* STEM is defined here to include non-medical occupations.
Source: Jobs data are calculated from the Bureau of Labor Statistics (BLS), Employment Projections 2010-2020, available at http://www.bls.gov/emp/.

NSF's Commitment to Cutting-Edge, Fundamental Research

- Science, Engineering & Education for Sustainability (SEES)
- Cyberinfrastructure Framework for 21st Century (CIF21)
- National Robotics Initiative
- National Nanotechnology Initiative
- Arctic Observing Network
- Advanced Manufacturing Initiative
- Secure Smart Systems and Cybersecurity
- Materials Genome Project
- Computational and Data-enabled Science & Engineering
- Real-time Networks and Major Research Facilities

National Science Foundation

WHERE DISCOVERIES BEGIN